

## Bellwork 9/21/12

### Translate to an inequality:

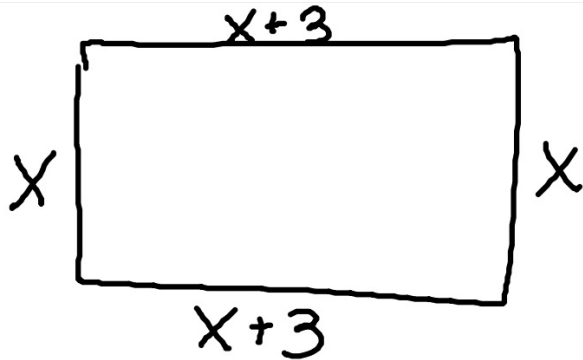
17 fewer than a number is  
at least 45.

$$\begin{array}{rcl} x - 17 & \geq & 45 \\ + 17 & & + 17 \\ \hline x & \geq & 62 \end{array}$$

← ~~62~~ 62

$$[62, \infty)$$

(24)



$$x + x + 3 + x + x + 3 < 52$$

$$\begin{array}{r} 4x + 6 < 52 \\ \underline{-6} \quad \underline{-6} \end{array}$$

$$\begin{array}{r} 4x < 46 \\ \underline{4} \quad \underline{4} \end{array}$$

$$x < 11.5$$

width < 11.5cm  
length < 14.5cm

25)  $5:6:7$

side 1      side 2      side 3

$$5x + 6x + 7x < 54$$

$$\frac{18x}{18} < \frac{54}{18}$$

$$x < 3$$

longest side  
less than  
21 cm

26

#1

#2

$$x + x + 1 > 16$$

$$\begin{array}{r} 2x + 1 > 16 \\ -1 \quad -1 \\ \hline \end{array}$$

$$\frac{2x}{2} > \frac{15}{2}$$

$$x > 7.5$$

smaller  
integer > 8

### example 3:

A movie rental program offers two subscription plans. You can pay \$36 a month + rent as many movies as you like or you can pay \$15 a month plus \$1.50 per movie. How many movies must you rent in a month for the first plan to cost less than the second plan?

You must rent  
15 movies.

$$\begin{array}{r} 36 < \cancel{15} + 1.50m \\ -15 \\ \hline 21 < \cancel{1.50}m \\ \underline{1.50} \quad \underline{1.50} \\ 14 < m \quad m > 14 \end{array}$$



example 4: sometimes, always, or never?

$$\textcircled{a} \quad -2(3x+1) > -6x+7$$

$$\begin{array}{r} -6x - 2 > -6x + 7 \\ +6x \quad +6x \end{array}$$

$$-2 > 7 \quad \text{F}$$

**NEVER**

$$\textcircled{b} \quad 5(2x-3) - 7x \leq 3x+8$$

$$10x - 15 - 7x \leq 3x + 8$$

$$\begin{array}{r} 3x - 15 \leq 3x + 8 \\ -3x \quad -3x \end{array}$$

$$-15 \leq 8 \quad \text{T}$$

**ALWAYS**

$$\textcircled{c} \quad 6(2x-1) \geq 3x+12$$

$$\begin{array}{r} 12x - 6 \geq 3x + 12 \\ -3x \quad -3x \end{array}$$

$$\begin{array}{r} 9x - 6 \geq 12 \\ +6 \quad +6 \end{array}$$

$$\frac{9x}{9} \geq \frac{18}{9}$$

$$x \geq 2$$

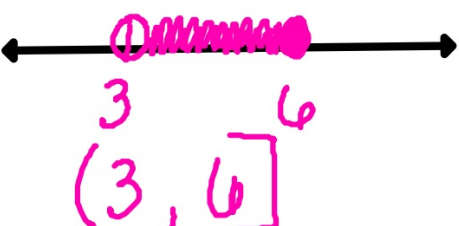
**SOMETIMES**

example 5: and vs. or (interval notation)

①  $7 < 2x + 1$  and  $3x \leq 18$

$\frac{-1}{-1} \quad \frac{1}{1}$   
 $\frac{6 < 2x}{2 \quad 2}$   
 $3 < x$   
 $x > 3$

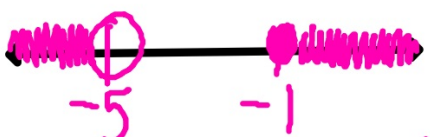
$\frac{3x \leq 18}{3 \quad 3}$   
 $x \leq 6$

  
 $(3, 6]$

②  $7 + k \geq 6$  or  $8 + k < 3$

$\frac{-7}{-1} \quad \frac{-6}{-1}$   
 $k \geq -1$

$\frac{-8}{-8} \quad \frac{-3}{-8}$   
 $k < -5$

  
 $(-\infty, -5) \cup [-1, \infty)$



# Homework:

pg 38 # 28-42  
evens only!

## Quiz Corrections:

- separate piece of paper.
- recopy the problem, number it.
- redo the problem, show  
ALL work!
- circle answer.